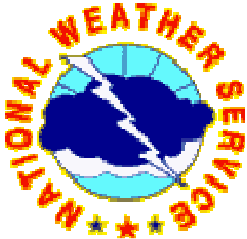


# The U.P. Weather Update

Volume 4, Issue 2

November 2007



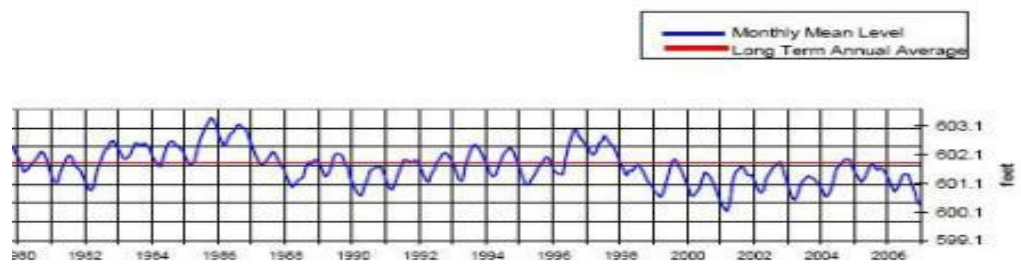
## Inside this issue:

Lake Superior water level	1
Marine Web Portal	2
New snow depth map	2
Open House a success!	3,4
Forecasting "Down Under"	5
U.P. Drought	6,7
Employee News	7
Sleeper Lake Fire	8
Weather radio update	9
The Last Word	9

## Lake Superior water level rebounds in October, but remains below average.

by David Pearson

The current water level in Lake Superior is below the long term average. In fact, with the exception of a few near average months, Lake Superior has been below its long term average since 1998 (see graph below). Just when it seemed this trend would never end, the month of October brought substantial rains to the Lake Superior watershed. In total, the Lake Superior watershed saw over 4.5 inches of rain which is 1.9 inches above average for October. This rainfall, in combination with above average rainfall for September, caused Lake Superior to rise 8 inches from September 1st to October 31st. While this rise in water level is extremely beneficial to Lake Superior, the lake level remains a foot below its long term average.



Graph courtesy of US Army Corp of Engineers

Over the years, Lake Superior has seen its ups and downs, with this year being overall "down." Since Lake Superior water levels started being recorded, the "Great Lake" has seen its fair share of above and below normal water levels. From 1928 to 1953, with the exception of a few slightly below normal episodes, Lake Superior was above average. Then in 1955, like the flip of a switch, water levels began to decline and remained below normal through 1968. The weather of the 70s and 80s brought Lake Superior back above normal. In fact, the years 1985 and 1986 hold 10 of the 12 monthly maximum water level records. The 90s saw a mixed bag of below and above normal activity. In 1998 Lake Superior went below normal and has stayed there since. If the historical water level for Lake Superior teaches us anything, it is that the lake will someday be above normal; the question is, when this will happen? The latest forecast from the Army Corp of Engineers has the lake dropping 2 inches over the next month.

For the latest forecast for Lake Superior and the other Great Lakes go to:

<http://www.lre.usace.army.mil/greatlakes/hh/greatlakeswaterlevels/waterlevelforecasts/weeklygreatlakeswaterlevels/>

For the complete water level graphic for Lake Superior go here:

<http://www.lre.usace.army.mil/greatlakes/hh/datalinks/PrinterFriendly/quickGraph.pdf>



## New Great Lakes Forecast page launched!

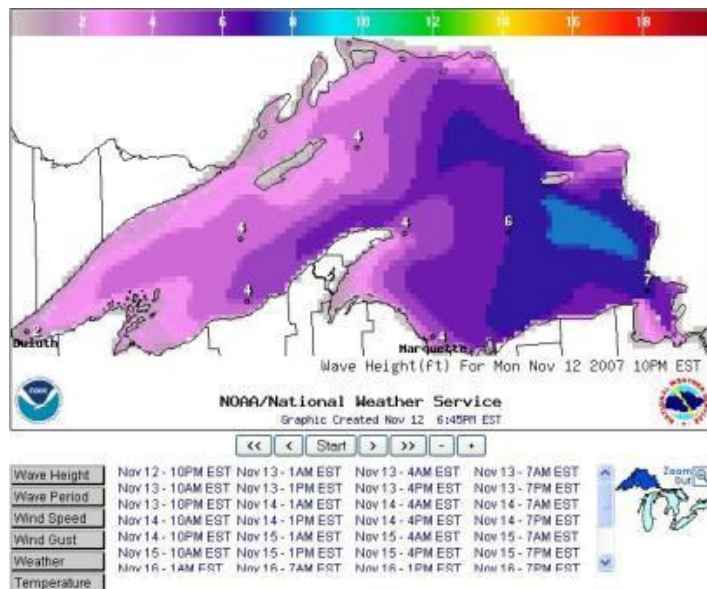
by David Pearson

On November 10th, 2007, the National Weather Service launched a new interactive way to view forecasts for the Great Lakes. The "Great Lakes Marine Web Portal" allows anyone with internet access to view graphical forecasts which include: wave height, wave period, wind speed, wind gusts, weather and temperature. In addition, you can also view current weather observations, water temperature profiles, current marine forecasts and water level forecasts.

The Great Lakes Web Portal also provides many educational and safety materials about the Great Lakes.

Please visit the new Great Lakes forecast page and let us know what you think.

[www.weather.gov/greatlakes/](http://www.weather.gov/greatlakes/)



## NWS Marquette launches new snow depth website

by Tom Green

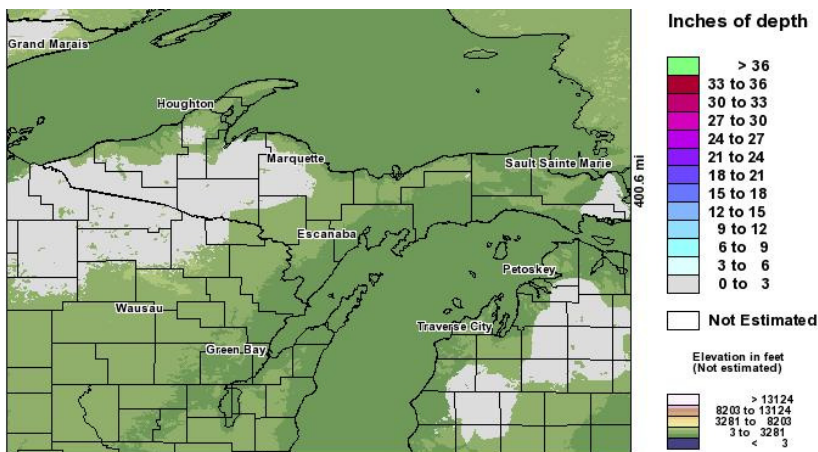
Users of the NWS Marquette snow depth webpage will find a newly designed page when visiting the website this winter. New images will be used on the website that are generated by the National Operational Hydrologic Remote Sensing Center (NOHRSC) in Chanhassen, MN. NOHRSC generates graphics for the entire United States, including observed snowfall, snow depth, and snow water equivalent, using both ground and satellite observations. The snow depth webpage will provide a map of the entire Upper Peninsula, with zoomed in maps available by clicking on a portion of the area map. We welcome any questions, [comments](#), or suggestions that users may have in regards to the snow cover webpage, or any other portion of the NWS Marquette webpage. To view the snow depth webpage, click on the "Current Snow Depth" link on the blue banner on the left side of our homepage, highlighted in the graphic bottom left. An example of the webpage is shown on the bottom right.

Local forecast by  
"City, St" or Zip Code

City, St  Go

Current Hazards  
Watches / Warnings  
Outlooks  
U.S. Hazards  
Hurricane Info  
Severe Weather

Current Conditions  
Observations  
Satellite Images  
Rivers & Lakes AHPs  
Precip Estimate  
Snow Cover  
**Current Snow Depth**  
COOP Reports  
Observations at WFO  
MQT  
Surface Map  
Send Us A Report  
Road Conditions



# NWS Marquette holds Open House

by Marcia Cronce

The National Weather Service office in Marquette held an Open House on Saturday, August 25<sup>th</sup>. This was the second Open House the office has held since it was established at its current location, Negaunee Township, in 1996. The Open House proved to be a grand success, with over 300 people in attendance! Tours of the facilities commenced every half hour and included an introductory presentation about the history and function of our office, a tour of the operations area, complete with an explanation of the "Anatomy of a Warning", and then a tour of the observing equipment outside. Outside, there were various hands-on weather activities, including a tornado machine, rain gage experiment, maximum/minimum temperature sensor, wind generator, interactive river model, weather safety miniature golf, weather balloon display, and a three-dimensional scaled snowfall climatology display. There was also a weather forecasting contest and the winner got to job-shadow a forecaster for a day.

In addition to the many exhibits, some of our cooperative observers (pictured below), volunteers who take rain, snow and temperature observations every 12 and 24 hours, were recognized for their efforts with an awards ceremony and refreshments.



Pictured from left to right: David Petrovich (Observation Program Leader), Herman Kinnunen (Cooperative Observer) and Marvin Taulbee (former NWS Marquette employee).

Mr. Kinnunen was awarded the 10 year service award for his work in taking daily weather observations in Baraga County.

We appreciate all of observations our cooperative observers give us on a daily basis. Without your hard work, our jobs would not be possible.

Thank you,

NWS Marquette Staff



Pictured left to right: Robin Turner (Meteorologist-In-Charge), Allan Slye (Cooperative Observer) and David Petrovich (Observation Program Leader).

Mr. Slye was awarded the 25 year service award for his work in taking daily weather



## Pictures from the Open House!



Forecaster Dave Guenther (far right), teaches a group about weather balloons.

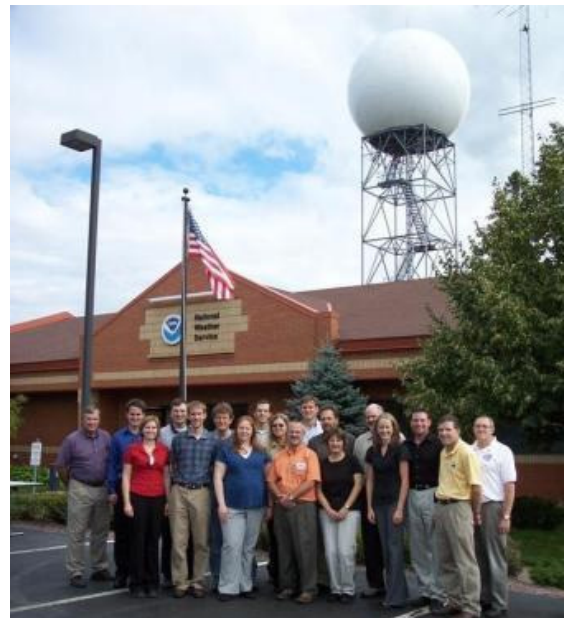


Kids playing at miniature golf weather safety display



Forecaster Jason Alumbaugh (bottom left), shows a tour group the "Anatomy of a Warning"

(Most of) The WFO Marquette Staff



Thank you to all those who came to the Open House, we enjoyed spending part of the day with you!

## Kari Fleegel travels to Australia to forecast fires

by Kari Fleegel

In early 2007, over a dozen National Weather Service meteorologists assisted on the international scene. Anticipating a weak to moderate El Nino, which tends to bring dry weather to the Southwest Pacific, and an already dry spring, the Australian Bureau of Meteorology requested help from the United States.

It is not unusual to have firefighters travel to different countries to assist with ongoing wildfires. In fact, Canadian and Australian forces can frequently be found on some of our US fires. However, meteorological assistance for fires is very rare.

Between January and April, National Weather Service meteorologists were stationed at 3 of the 7 Bureau of Meteorology regional forecast centers in Sydney, Melbourne, and Hobart.

I (pictured far right) was lucky enough to be chosen as one of these meteorologists, and was stationed in Hobart from mid March to early April. Weather is very universal, but

some training was still necessary in order for us to give adequate support to fire personnel. As a result, the first two days of my dispatch were spent at the training center in Melbourne. From there I travelled to Hobart. Even though fires were winding down at the time of my deployment, there were still some active burns going on. During this time, I produced the daily fire weather forecasts, spoke to fire personnel and gave them site specific forecasts for ongoing or planned burns.



Three different National Weather Service meteorologists spent time at the Hobart office. The other two were from Kansas and Colorado. It was a great experience to learn about different forecasting methodologies to foster relationships between groups of people who have one very important thing in common, the love of weather.



Due to Australia's location in the southern hemisphere, the peak fire season is during their summer months of December through February. The fire season started early in Hobart, Tasmania, the island state of Australia just south of the mainland. The above picture, courtesy of Ian Stewart, is of a large fire that got dangerously close to the town of Hobart, scorching many of the surrounding hills in October 2006.

## La Nina forecasted to develop over the next three months

by Kevin Crupi and David Pearson

The Climate Prediction Center (CPC) is forecasting a slightly greater than climatological chance of an above normal average temperature for the next three months (December 2007 through February 2008). In addition, CPC is also predicting a greater than climatological chance of precipitation over south central and eastern Upper Michigan, but an equal chance of above and below normal precipitation over the west and north central. Water temperatures in the tropical eastern Pacific Ocean have dropped to between 1 and 3 degrees below normal, which translates to a La Nina. This temperature shift is forecast to persist through the winter. Similar La Nina conditions prevailed during 1995-1996 and 1998-1999. As you may recall, the winter of 1995-1996 was cold and snowy, while the winter of 1998-1999 was generally mild with below normal total snowfall. For the most current El Nino/La Nina forecast please go to: <http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml> The table below is a summary of the past six La Nina events that occurred and the corresponding average maximum/minimum temperatures, total snowfall and total precipitation for December, January and February of each episode at our office.

**Values valid for NWS Marquette office**

Years (DJF)	Average Max Temperature	Average Min Temperature	Total Snowfall	Total Melted Precipitation	
1983-1984	23.6	4.8	119	8.15	
1984-1985	23.0	5.2	140.1	8.65	
1995-1996	21.8	3.8	149.5	10.61	
1998-1999	26.2	10.7	130.1	9.68	
1999-2000	27.2	8.5	105.2	5.14	
2000-2001	22.6	7.9	175.5	7.82	
<i>Average</i>	<i>24.9</i>	<i>8.4</i>	<i>120.9*</i>	<i>6.98*</i>	* = average value (1980 to 2007)

## Upper Michigan drought conditions improve!

By Tom Green

Upper Michigan has seen a great deal of variety in its drought status over the last 6 months. The entire area has suffered from below normal precipitation, both in the short- and long-term. As of May 1<sup>st</sup>, the western half of Upper Michigan was categorized as abnormally dry by the U.S. Drought Monitor, while the eastern half was not included in any drought category. By the middle of July, the western third was classified in a severe drought, with much of the eastern U.P. under a moderate drought.

The drought status continued to worsen into early September, as many sites reported rainfall well below normal. Many sites reported approximately half of their normal rainfall for the May through August period, with the effects intensified by above average temperatures through the time period. Newberry, the city of Marquette, and the NWS Marquette office in Negaunee Township all reported their lowest May to August rainfall on record, with the Houghton County Airport, Iron Mountain, Ontonagon, Munising, and Ironwood all recording one of the 5 driest May to August periods on record. Over the 12 month period from September 2006 to August 2007, the Houghton County Airport was almost 12 inches below normal, only receiving 65 percent of the average precipitation. The U.S. Drought Monitor reported extreme drought conditions north of a line from Ironwood to Escanaba over to Grand Marais, with the rest of Upper Michigan experiencing severe drought conditions.

The rains finally arrived to the Upper Peninsula in September. Several soaking rainfalls moved across the area, bringing over 5 inches of rain to some locations in the first week of the month alone. The NWS Marquette office set its single day record rainfall, receiving 4.29 inches of rain on September 4<sup>th</sup>. The office received a total of 7.48 inches of precipitation for the month, just short of the all time monthly September record of 7.60 inches set in 1968. The Houghton County Airport received 11.24 inches of precipitation, shattering the previous September record of 6.62 inches and previous monthly record of 9.48 inches. In the first 8 months of the year, the airport had only received 13.5 inches of precipitation.

The October 4<sup>th</sup> issuance of the U.S. Drought Monitor showed the improvement in drought conditions. South Central Upper Michigan remained under severe drought conditions, mainly as a result of the September storms staying north of that region. The rest of Upper Michigan was classified in the moderate drought category.

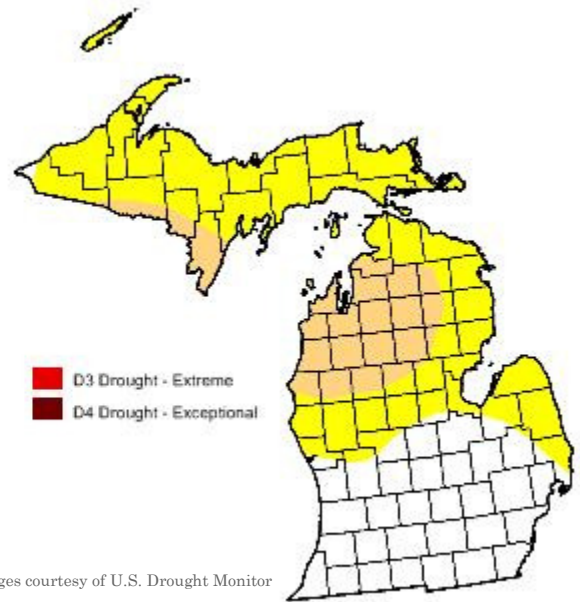
(continued on next page)



# Drought conditions improve!

by Tom Green

Drought conditions continue to improve across Upper Michigan. As of November 15, south central Upper Michigan was classified under moderate drought conditions, while the rest of Upper Michigan was classified as abnormally dry. While the above normal rainfall has essentially eliminated the short-term drought concerns, the region remains several inches below normal over the last few years. As a result, the area will likely remain under abnormally dry conditions until several months of above normal precipitation eliminates the long-term deficit.



For the latest drought monitor map, check out:  
[www.drought.unl.edu/dm/monitor.html](http://www.drought.unl.edu/dm/monitor.html)

Images courtesy of U.S. Drought Monitor

## Employee News

by Tom Green

Since the last published newsletter, two employees have transferred to different locations. In September of 2007, Intern Meteorologist Jennifer Lee was promoted to a General Forecaster position in Huntsville, AL. In October of 2007, Tom Hultquist, Science and Operations Officer, transferred to the Twin Cities office in Chanhassen, MN, where he assumed a similar position to the one he held at this office. Both Tom and Jennifer provided great contributions to the Marquette office, both in terms of internal training and development and outreach programs such as the Open House and Cooperative Observer programs.

Jennifer's position in the office will be filled by Steve Fleegel, who will transfer from the Green Bay NWS office. Steve is originally from Minnesota and graduated from UND with his bachelor's degree in Meteorology. He is the husband of General Forecaster Kari Fleegel. Steve arrived on station the week after Thanksgiving.

Tom's position, Science and Operations Officer, will be filled by Michael Dutter. Mike is transferring from the NWS office in Cleveland, OH where he is a lead forecaster. Mike is no stranger to Michigan's Upper Peninsula; from 2001 to 2004, Mike was a General Forecaster at the NWS office in Marquette. Mike is scheduled to arrive on station during the first week of the new year.

## Random Fact

Did you know the [National Weather Service](#) spans across 12 time zones?

There are NWS offices:

- as far west as [Koror, Micronesia](#) (7,904 miles away) - near the Philippines
- as far north as [Barrow, Alaska](#) (2,767 miles away)
- as far south as [Pago Pago, American Samoa](#) (7,461 miles away)
- as far east as [U.S. Virgin Islands](#) (2,306 miles away)

# Forecasting at the Sleeper Lake Fire

By Kari Fleegel

Other than our regular Fire Weather Planning Forecast and Point Forecasts, a special service was implemented for the Sleeper Lake Fire. This was the use of an IMET. It is rare to utilize this resource for the state of Michigan. In fact, it has been well over 15 years since an IMET has been utilized. For comparison, the state of Minnesota deploys 1 to 2 IMETs a year on various fires.

So you are asking, what is an IMET? Well, an IMET is an Incident Meteorologist. In the National Weather Service, we have 77 specialized personnel that train for fire and other deployments. In the past, these other deployments have included fires, as well as various events of social significance and danger, such as Hurricane Katrina, the space shuttle Columbia recovery efforts, and the Greensburg, Kansas tornado.

For 2 weeks during the peak of the fire, August 10<sup>th</sup> to the 23<sup>rd</sup>, John Jacobson, IMET from the National Weather Service office in Jackson, Kentucky joined the team on the Sleeper Lake fire. He was the life line between the Marquette National Weather Service office and fire personnel on the scene. His role included preparing daily site specific forecasts and attending various meetings where this information was discussed. He was an invaluable resource and the National Weather Service office in Marquette thanks him for his assistance during this large UP fire.

In all, the Sleeper Lake fire burned more than 18,185 acres and cost over 7 million dollars. These numbers could have been much higher if it wasn't for the brave individuals who fought and managed the fire.



Due to the remote location of the fire, aerial fire suppression had to be used to get to those hard-to-reach areas.

Photos courtesy of Michigan DNR



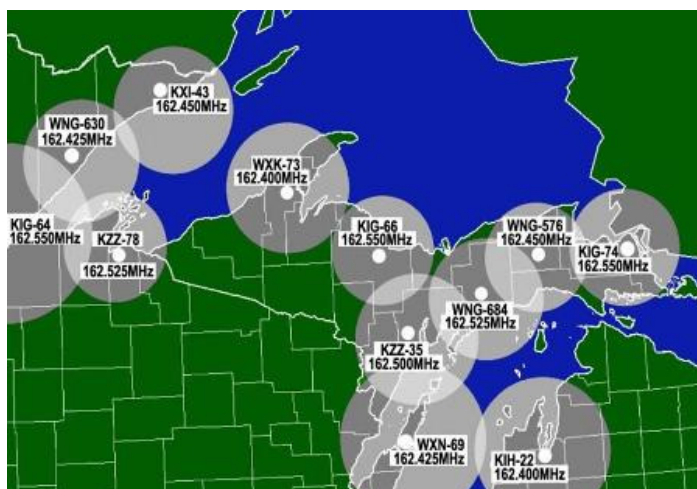


# NOAA All Hazards Weather Radio is expanding!

by Marica Cronce

Two new NOAA Weather Radio transmitters are coming to the Upper Peninsula! The transmitter near Crystal Falls is expected to be online sometime this winter. The installation of the transmitter near Marenisco has encountered a few delays and should be up and running by late spring. The Marenisco transmitter will cover Gogebic and Ontonagon counties in Upper Michigan, and Iron and Vilas counties in Wisconsin. It will also distribute nearshore marine forecasts for the zones between Saxon Harbor and Ontonagon. The Crystal Falls transmitter will cover Iron, Dickinson and Baraga counties in Upper Michigan, and Forest and Florence counties in Wisconsin. Keep checking our website (<http://weather.gov/mqt>) for more information regarding the start dates and frequencies of these two new transmitters.

There is a new transmitter on air in Northern Lower Michigan, located near Good Hart, Michigan in northern Emmet County. It operates at a frequency of 162.475 MHz. The transmitter provides coverage across northeastern Lower Michigan, Mackinac County, the Straits of Mackinac, and northern Lake Michigan open lake and nearshore marine zones. The two pictures below show the NOAA weather radio coverage before the new transmitters are added and after. Notice that the large unshaded area across the western half of Upper Michigan is almost completely removed.



Current weather radio coverage

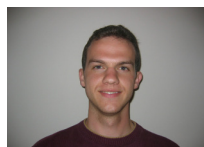
[NOAA Weather Radio website](http://weather.gov/mqt)



Anticipated weather radio coverage  
(transmitters in Wisconsin, Chippewa County and Lower Michigan not pictured.)

## The Last Word

by  
David Pearson



Thank you for taking the time to read this newsletter, I enjoyed putting it together. A big thank you to all those who attended our Open House back in August. We were happy to show you a glimpse of what goes on at this office. If you have any comments or future story ideas for this newsletter, feel free to email me at [david.pearson@noaa.gov](mailto:david.pearson@noaa.gov).